

**ABSTRACT OF THE INVENTION**

5 The present invention is directed to genetic materials useful for the preparation of  
astaxanthin from beta-carotene, such as polypeptides having astaxanthin synthase  
activity, DNA fragments coding for astaxanthin synthase, recombinant organisms and  
the like. Those novel genetic materials may be derived from *Phaffia rhodozyma*. The  
present invention also provides a process for the production of astaxanthin.

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